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JUNE 1, 1880.

CIRCULAR OF NEW JERSEY STATE BOARD OF HEALTH.

PROTECTION TO BATHERS.

Our statistics show that from July 1st, 1878, to July 1st, 1879, 193 persons were drowned in this State. Some at the sea shore, or by the capsizing of boats, some in ponds, many while bathing in rivers or small streams, some in pools or cisterns. Many of these were good swimmers. Not all of these perish from real drowning. Some have heart disease made fatal by nervous shock—others apoplexy or some intense congestion—others syncope from exhaustion. It is not easy to decide on the moment whether the drowning is from any of these causes and it is better to proceed on the supposition that the case is one in which death has occurred from the shutting out of the oxygen of the air. Cases where the hands are clasped and the fingers contracted are the most hopeful. "Those capable of inhaling and retaining a large amount of air in the lungs and those who retain their presence of mind in the greatest degree, are those who resist the dangers of submersion for the longest time and are the most readily revived, while those who force nearly all the air from their lungs at the first shock can seldom be recovered."

"When a person falls into the water or is exhausted by the act of swimming, he goes beneath the water, then again comes to the surface, aided by the buoyancy of the air in the body and in the clothing. In coming to the surface, realizing danger, he instinctively assumes the upright position, springs from the surface, and throws up the arms for help, at the same time endeavoring to relieve the desire for breath, by an inspiration, and to express the desire for aid, by calling out. This effort takes in water as well as air, and produces a slight spasmodic cough during which act the body goes beneath the surface the second time. As the consciousness of sinking becomes more acute, there is an agonized expression of the countenance which is indescribable, but which, when once seen, will be ever remembered and recognized—and at the same time frantic efforts are made to grasp everything that can be seen, whether within reach or not, and this desire continues even after having sunk, as oftentimes bodies are found clutching the weeds, grass, or stones, that may be found at the bottom of the water.

"Sometimes the air is so exhausted from the system, that the body does not come to the surface after going down the second time, but generally there is sufficient inflation to bring it once more to the surface, when as soon as the head comes above the water, the

urgency to take breath has become so great that a full inspiration is made without due caution, and a large quantity of water and a small quantity of air are taken into the system. The water penetrating into the bronchial tubes produces a second fit of coughing, expelling what little air may be left, and the body sinks just below the surface or goes to the bottom."

Five minutes under water is the usual limit after which recovery is improbable in a case of drowning, but as there is not always the same amount of air exclusion, as the time cannot always be accurately stated, as syncope or nervous shock may have modified the lung and air condition, and as there may be slight inhalation of air before it is perceived, no case not known to have been *under water* half an hour should be regarded as hopeless. Persons have been recovered who for an hour have shown no outward sign of life. Places frequented by boys for swimming, and all bathing places, and life saving stations, should have definite provisions for such accidents, and should be required by their patrons each year to state precisely what these appliances are,—and to show that they are in perfect order for instant use and under such direction as to be readily at hand. An accident ought never to occur without a full knowledge beforehand of how most rapidly to secure aid and appliances.

Printed guides in public places near the water serve both as information and warning. Methods and skill depend on seconds for success. For details we refer to an article prepared for the N. J. State Board of Health by T. G. Chattle, M. D., and to be found in our report of 1879.

In a case just occurring, the boat seeking the drowned one should have in it a person whose duty it is at once to take charge of the recovered body and not wait to land before doing anything.

When needing to be removed there should be at hand a stretcher on which to carry the body. Some one on the shore should be securing things needed.

The body should be carried with the face and front downward. One person each side with hands joined across the thighs, and with the others passed under the arm-pits to the head, will give the chest more freedom, and help to empty water, froth or mucus from the chest or stomach.

Discipline or readiness for the accident is the first and best promise of restoration. Order hot bottles, dry clothing, electric battery, hypodermic syringe or other provided apparatus to be brought and thus be ready with whatever the person directing may want.

HOW TO TREAT THE DROWNED; HOW TO SAVE A LIFE.

I. Cleanse the mouth and nostrils quickly and loosen collar, necktie and other clothing if you can, so as to get at waist and chest, but do not lose time at this.

Roll the body over upon the right side and so on over upon the face, the face resting on the bent right arm. Thrust your finger in at the angle of the mouth, and if you find the tongue fallen back press or draw it forward. (The second or third finger of the other hand or a knot in a handkerchief will hold the mouth open while doing this if need be.) Then standing astride the body and clasping your arms around it so that the fingers of your two hands interlace just over the navel, raise the body by a slight jerk three or four times so that all but the head and feet clear the ground. This is to clear the stomach and windpipe, and will not take a half minute.

II. Then turn the body on the back with the head as low as the body. Draw the tongue forward to one side of mouth and pass a lead pencil or stick as thick as the forefinger, in from the side and across to the opposite back tooth, so as to keep the mouth a little open. (The stick will generally keep the tongue, or if not, it may be held.)

III. Then open the vest and the outer clothing so as to get nearer to the surface. If at hand, apply ammonia up the nostrils and inject with a hypodermic syringe a dram or teaspoonful of brandy or whisky every few minutes beneath the skin of the upper arm or shoulder, or let another do it while you work on at *artificial respiration*—

THUS: In order to fill the lungs with air, raise both arms slowly upward and backward, until the hands are brought together directly over the head. Then, more quickly, replace them at the sides.

To expel the air from the lungs:

Place one hand upon the navel and the other close above it; then press heavily upon the navel, at the same time with the other hand or fist push strongly inward and upward, taking off the pressure suddenly. Then repeat the arm movement, and so alternate on and on. One or two persons can do it.

Each time as the arms are drawn back dash hot water against the sides. During these movements some one else should wipe the hair with a towel and put on the head a dry woolen cap; take off the shoes and stockings and wrap the feet in warm flannel and apply the galvanic battery to the feet, thus aiding and yet not interrupting the work of the one in charge who must be recognized as director.

If still there are no signs of life, vary the arm movement, and instead grasp the body around the chest and with the operator's arms under the patient's arm-pits, raise the body forward gently and quickly to a sitting posture, then lay it down again and

press over the navel with the hands as before and alternate by this method about six or eight times per minute, and continue according to indications.

The galvanic battery is best applied to the side of the neck and chest walls but at first, time must not be lost from these systematic efforts to induce artificial respiration. Lose no time, and yet do not hurry so as to lose regularity, and do not wait for anything you may want.

Warm rubbing, warmth, ginger tea, hot coffee, champagne or wine, beef tea and egg should be ready for use if there is resuscitation and ability to swallow. A portable bed should be at hand, so that in transfer to a building there may be no exposure but a recovery of animal heat. As some die in secondary shock after apparent revival, this must be guarded against by quiet, warmth, food and rest.

How to keep the tongue from falling toward the windpipe and so impeding respiration.

Feel with your finger where the tongue is when you put in the pencil or stick and press it down and forward. If you have no one to hold the tongue you need not hesitate to pass a large pin or a small hook through its end which does no harm and can be passed on through afterward by taking the line off of it. If the stick is passed in at one angle of the mouth across to the back tooth of the opposite side, and raised a little, that pries open the mouth, and the tongue can be worked or pulled well forward or out at the angle of the mouth and held by a handkerchief over the fingers if need be.

How to use the Hypodermic Syringe.

Remove the nozzle and fill it with brandy or whisky as you would a small syringe. Pinch up the skin and insert horizontally so that it pierces through the skin. Then push the piston down till the barrel of the syringe is emptied of a teaspoonful. A physician may add to the first or second injection the $\frac{1}{50}$ of a grain of digitaline or six drops of the tincture or three of the fluid extract of digitalis. A drop of the fluid in the syringe should always be forced out before insertion, so as to have no air forced in.

How to use the Electric Battery.

Have a small Faradic current battery. Mix a little water with a half teaspoonful of the bisulphate of mercury, or if out of it, use any strong acid, and put it in the metal cup. Then see, by holding the tin handles, one in each hand, that the battery works strongly. Apply one handle closely at the side of the neck and the other at the pit of the stomach. Move the latter handle around and between the ribs of either side and at the ticklish points at each side under the ribs. A battery should be kept at every bathing place. Use it as early as you can. A good hand battery, such as Grenet's, can be had for ten dollars.